REMARKS

The Examiner is respectfully requested to review this application which has been amended after a careful consideration of the Examiner's comments in the above-identified Office Action and the references cited therein. Specifically, claim 24 has been amended to more distinctly point out and clarify applicants' invention. Claims 24-26, 36 and 39, as amended, are now pending. In the above-identified Office Action, the Examiner maintained the rejection of claims 24-26 as unpatentable over the Brown et al and Tobin references, the rejection of claims 36 and 39 as unpatentable over the Brown et al and Schmunk references, and the rejection of claims 36 and 39 on the basis of indefiniteness. Independent claims 24 and 36, as amended, and claims 25, 26 and 39, depending therefrom are neither disclosed nor suggested by the references and are now considered to be in allowable form.

For example, regarding the rejection of claim 24, the Examiner is relying on the Tobin reference dealing with winding techniques. This is clearly in error, i.e. the Tobin reference neither teaches nor suggests any winding of a fuse tube layer with arc-extinguishing material. The use of a woven or spirally wound material as a component part at the boundary between the inner portion 30 and the outer portion 40 has no relation to a wound fuse tube layer. Further, the Examiner also reminds the undersigned attorney that the primary reference, Brown et al is directed to a wound tube having fiber and arc-quenching materials together. However, the Examiner has not shown why a sleeve of woven or wound material between two molded layers would suggest anything as to the use of melamine in an inner winding layer in the context of the Brown et al. reference or this art, i.e. why would one skilled in the art look to the Tobin reference having a woven or wound boundary layer component in a molded tube when practicing the Brown et al winding approach? Specifically, the melamine in Tobin is within the molded inner tube and does not interact with any woven or wound material except at the interface with the molded outer layer. Accordingly, it is not clear how the molded fuse tube of Tobin suggests the use of melamine in the inner wound layer of the Brown et al reference. Claim 24 is directed to a fuse tube having a multiple layered laminate construction including an inner arc-quenching surface layer comprised of a filament wound fiber reinforced matrix comprising a thermosetting resin and melamine, and also including at least one outer layer of filament wound glass fiber reinforced thermosetting resin, the outer layer being bonded to the inner arc-quenching surface layer whereby no dielectric or mechanical interface is present between the inner and outer layers, the inner arc-quenching surface layer comprising at least 10% by weight melamine, at least 10% by weight of the filamentous fiber material and at least 40% by weight of the thermosetting resin. This fuse tube is neither disclosed nor suggested by the prior art. Thus, claim 24 and claims 25-26 depending therefrom are considered to be allowable.

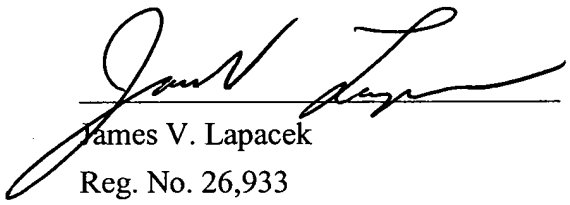
Regarding the Examiner's remarks related to claim 36, the Examiner again is in error as to the fiber laying flat and not overlapping in each winding pass. As explained at page 5, lines 6-11 of the specification, the non-overlap relates to the fiber during the winding pass, not non-overlapping passes. Thus the Examiner's statement that a single layer has no overlap is not correct. Applicants' invention as recited in claim 36, as amended, a method of fabricating an arc-quenching tube is recited via the winding of a first fiber in one or more winding passes and the subsequent forming of a predetermined taper within the arc-quenching tube wherein the predetermined taper defines the desired minimum wall thickness of the tube, the arc-quenching tube having a desired minimum wall thickness after fabricating so as to provide the expected arc-quenching over the expected use of the arc-quenching tube, the method comprising winding the arc-quenching tube such that the first fiber lays flat and does not overlap in each of the one or more winding passes whereby a predetermined suitable uniformity is achieved in the thickness of the tube, the method further comprising forming a predetermined taper within the arc-quenching tube wherein the predetermined taper defines a minimum predetermined wall thickness of the tube, the predetermined suitable uniformity being such that variations in the thickness of the tube are significantly less than the minimum predetermined wall thickness so as not to significantly impact or interfere with the desired wall thickness defined by the predetermined taper. The prior art neither discloses nor suggests the combination of a taper and a predetermined suitable uniformity of winding being so achieved for producing such a fuse tube. The mere presence of a non-uniformity in prior art tubes does not suggest the claimed method to achieve a predetermined suitable uniformity in the arc-quenching tube having a taper that defines the wall thickness. The fiber being made to lay flat assists in providing the uniformity. FIG. 3 of the application illustrates what happens with a tapered bore when the uniformity is not suitable. Namely, when the taper is produced within the tube, taper extends beyond the wall of the arc-quenching tube and into the outer tube. FIG. 4 illustrates how a suitable uniformity results in the taper being contained within the wall thickness of the arc-quenching tube 12. The predetermined wall thickness of the tube is defined by the taper in the absence of variations in the uniformity. The taper in combination with the variations in uniformity determine the required wall thickness to achieve a desired minimum wall thickness at the greatest point of the taper. The relative dimensions of an illustrative example are set forth at page 7, lines 24-27. As set forth at page 7,lines 17-19, the minimum wall thickness depends on the amount of the wall thickness that is expected to be eroded or ablated over a useful life. This method provides, as shown in FIGS. 4 and 5, a minimum thickness of the inner layer of the fuse tube while ensuring that the normal erosion of the arc-extinguishing bore during repetitive use does not extend into the outer layer that does not have the same arc-extinguishing properties. Such is important when providing the high strength and wide current interrupting range in a fuse tube that can interrupt 12000 amperes.

Thus, claim 36, as amended, and claim 39 depending therefrom are allowable, claim 39 additionally reciting the winding of a second fiber over the first fiber.

Regarding the Examiner's comments on the 112 rejections to claims 36 and 39, by the previous amendment to claim 36 and the above discussion of terminology, applicant's were attempting to respond to this objection.

Accordingly, claims 24-26, 36 and 39, as amended, are considered to patentably distinguish over the cited reference, and these claims and this application are considered to be in a condition for allowance. A favorable action to that end and allowance of this application by the Examiner are respectfully requested. If the Examiner feels that clarification of any issue or comment herein would be helpful to facilitate prosecution of this application, the Examiner is respectfully requested to contact the undersigned attorney at the number listed below for a telephonic interview or to arrange a personal interview.

Respectfully submitted,



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